

**A SYSTEM AND METHOD FOR OPTIMIZING TEMPERATURE
OPERATING RANGES FOR A THERMAL INKJET PRINthead**

ABSTRACT OF THE DISCLOSURE

5 The present invention is embodied in a system and method for
optimizing the temperature operating range for a thermal inkjet printhead
using pigmented ink over large print swaths. The printhead assembly
includes connection and processing circuitry, a printhead body, ink channels,
a substrate, such as a semiconductor wafer (commonly referred to as a die),
10 a nozzle member and a barrier layer located between the wafer and nozzle
member. The nozzle member has heating elements in arrays, as well as
plural nozzles coupled to respective ink channels and is secured at a
predefined location to the printhead body with a suitable adhesive layer. The
printhead also includes a controller, which can be an integrated circuit
15 processor, a printer driver, firmware or the like for controlling an increase in
the mean temperature of the die through a feedback loop. The loop activates
the heating elements and therefore increases the baseline temperature of the
die before printing, and in turn decreases the temperature differential
between the baseline temperature and the mean temperature of the die.